

Mineral Industry Surveys

For information, contact:

Jozef Plachy, Zinc Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4982, Fax: (703) 648-7757
E-mail: jplachy@usgs.gov

Brandon Pfleckl (Data)
Telephone: (703) 648-4998
Fax: (703) 648-7975
E-mail: bpfleck@usgs.gov
MINES FaxBack: (703) 648-4999
Internet: <http://minerals.usgs.gov/minerals>

ZINC IN JANUARY 2000

Domestic mine production in January, expressed in content of ore, declined by more than 3% below the previous month's production but increased by more than 8% over January 1999. Smelter production in January remained the same as in December but was nearly 13% lower than a year ago. Apparent consumption declined by about 1% but was about 1% higher than that in January 1999.

The *Platt's Metals Week* composite price for North American Special High Grade zinc in January was slightly lower than the previous month's price but about 23% higher than in January 1999.

Rising London Metal Exchange stocks, particularly in Singapore and Trieste, had a further depressing effect on prices. Despite increasing stocks and declining prices, the outlook for zinc in the longer term remains sound, according to some metal brokers. Despite increases, stocks are at relatively low levels and demand for zinc is exceeding expectations. As usual, China remains the unknown factor. In July 1999, China banned the export of zinc concentrates. Consequently, China's production of zinc metal increased as did the export of zinc metal. Future exports could be curtailed due to increased domestic demand. Start-up of several galvanizing lines should boost demand for zinc, which in the past lagged behind growth in output (*Mining Journal*, 2000b). Increased demand is also expected in other Asian countries that are beginning to climb out from the economic depression of the past few years.

Cominco Alaska Inc., subsidiary of Cominco Ltd. of Canada, has begun a project designed to bring the mill at the Red Dog Mine in Alaska up to its full operational potential. The \$90 million project will include an upgrade of existing water treatment capacity, a new large-capacity zinc thickener, a major addition to flotation capacity and backup power generation, and enlargement of fuel storage capacity. These improvements will allow Cominco Alaska to produce 1.1 million tons per year of zinc concentrate, at a grade of 56%, by the second half of 2001. Increased production at the Red Dog Mine will partly compensate for planned closures of Cominco's Polaris and Sullivan mines. Polaris, located on Little Cornwallis Island near the north magnetic pole in the Nunavut

Territory, is expected to close in late 2001 or the first half of 2002, while Sullivan, located in British Columbia about 160 kilometers east of Cominco's Trail smelter, is scheduled to close in mid-2002 (*Platt's Metals Week*, 2000b).

Noranda Inc. of Canada has suspended operations at its newly opened Bell-Allard zinc mine and mill for between 4 to 6 weeks. The mine, located near Matagami, Quebec, was closed because a hoisting skip malfunctioned and damaged the mine's underground shaft compartment. No one was injured in the incident. Operation of Noranda's refinery at Valleyfield will not be affected as sufficient stocks of concentrate exist at the plant. The mine began operation at the start of this year, reaching 65% of its 2,000 tons per day capacity before the accident (*Mining Journal*, 2000a).

Mexican zinc producer Peñoles is to expand production capacity at its Torreón electrolytic zinc plant in 2000 from 130,000 tons to 220,000 tons per year at a cost of \$122 million. The expansion will require increasing the number of cathodes per cell and cathode size. A new fluid bed calciner, sulfuric acid plant, and other equipment will also be added. During 1999, in addition to other metals, Peñoles produced 149,000 tons of contained zinc in concentrate. In 2001 it expects to push zinc production to 190,000 tons, and by 2003 it hopes that output will reach 356,000 tons. This additional zinc concentrate production is to come from increased output from existing mines and two new mines: the Rey de Plata, scheduled to start up this year and produce 27,000 tons per year of contained zinc and the Francisco Madero, which should produce 96,000 tons per year of contained zinc in concentrate (*Platt's Metals Week*, 2000d).

Empresa Minera del Centro del Peru S.A. (Centromin) is proceeding with the auction of its remaining 25% interest in one of Peru's major zinc mines, Minera Iscaycruz, near Oyon in the central Andes. The remaining 75% interest in the mine is owned by Glencore International AG of Switzerland. Before auction is announced in March or April, Centromin must obtain proper assessment of the value of the mine. Analysts have estimated that a sale will involve the offer of about 11 million shares worth approximately \$38 million. Glencore is almost certainly going to

be a contender, because with its majority ownership, Glencore will automatically have pre-emptive rights on the remaining shares. Iscaycruz is one of Peru's top five zinc mines and produced 91,570 tons of zinc in 1999 (Metal Bulletin, 1999b).

Final commissioning of Pasminco Ltd.'s Century Mine in Australia was expected to be completed and fully operational by March of this year. The final development cost was \$498 million, about 10% below budget. The first 10,000 tons of zinc concentrate, produced from the development ore, was shipped to the Budel smelter in December of last year. The shipment will be stockpiled at the smelter in Netherlands until regular monthly shipments begin in March. Budel will require about 400,000 tons per year of concentrate from Century by June 2000 to eliminate its waste disposal problems caused by too much jarosite in the current supply of concentrates (Platt's Metals Week, 2000a).

Western Metals Ltd. of Australia will spend \$6.7 million to expand the Pillara mining complex, located in the Kimberley region of Western Australia. Western Metals' production of 139,000 tons of zinc in concentrate in 1999 will likely remain the same because the company will close the aging concentrator at Cadjebut. The expansion of the Pillara concentrator from 1.5 million to 2.4 million tons per year of ore processing capacity is expected to reduce the annual cost of beneficiation by some \$3.2 million. In addition, Western Metals expects ore from the deeper deposit at the Pillara Mine to have a much higher grade so that contained metal output is likely to rise substantially. Grades at greater depth are as high as 12% zinc, compared to the current 8.4%. Production at the Pillara Mine will rise by 20% to 1.8 million tons of ore per year; the remaining 0.6 million tons of ore, needed for the expanded concentrator, will be trucked in from the nearby Western Metals' Kapok Mine (Metal Bulletin, 2000d).

Update.—Finnish base metal producer, Outokumpu Oy, aims to return its Tara zinc mine in Ireland to its full capacity of 175,000 tons per year as soon as possible following the acceptance of the new agreement by the Service, Industrial, Professional Technical Union on February 10 and craft unions on February 17. The key points of the deal, brokered by the Irish Government, include agreement on miners' bonuses and pay, extended shift schedules with increased shift premium payments, and the use of contract workers. An extensive recruitment and training program creating 40-50 new jobs will be implemented and some contract workers will also be employed. The dispute between the management and workers had been ongoing since a previous threat of closure in July 1999. It had led to 30% absenteeism, failed production targets, and losses of about \$1.26 million per month. Tara Mines Ltd., subsidiary of Outokumpu, will also be seeking approval for an investment of \$42.6 million to deepen the mine, extending the life of the mine by at least 8 years. Tara, Europe's largest zinc mine, is located in Navan, County Meath (Platt's Metals Week, 2000e).

Spain's Los Frailes zinc mine, owned by base-metal producer

Boliden Ltd., is now expected to be operating at full capacity by the end of March. In order to make up the lost production, it had been hoped that by mid-February the mine would be producing about 125,000 tons of zinc in concentrate per year. However, it is currently operating at just over 80% of the former capacity, which was only about 100,000 tons per year. Los Frailes was forced to cease operations in April 1998 for 15 months because of a tailings dam failure, which released acidic water into the Rio Agrio river. The mine restarted in June 1999 after its milling license was restored along with the permit to dump tailings in the nearby, now depleted, Aznalcollar open pit zinc mine. The closure and cleanup cost the company \$42.5 million. The first shipment after the reopening left the mine in late July 1999 (Metal Bulletin, 2000c).

The Bulgarian Privatization Agency has resumed its plans to sell an 80% stake in the Plovdiv zinc-lead smelter. The deadline for bids from potential buyers is March 27, and a deposit of \$400,000 is required from parties wishing to participate. One of the first companies to place the required deposit was Glencore International AG of Switzerland. Other interested companies include Allied Deals Ltd. of the United Kingdom, Mes Metal of Turkey, and Mytilineos of Greece. The Plovdiv plant has a capacity of 55,000 tons of zinc and 40,000 tons of lead per year (Metal Bulletin, 2000a).

Iran's biggest zinc production plant, with a capacity of 28,000 tons per year, Bafq, Yazd province, will go into operation in March. \$429 million of domestic funding and \$30 million of foreign investment have been spent on the project (Platt's Metals Week, 2000c).

References Cited

- Metal Bulletin, 2000a, Bulgaria resumes plans to privatize KCM zinc-lead plant: Metal Bulletin, no. 8455, March 2, p. 3.
- 2000b, Centromin plans to auction remaining stake in Iscaycruz: Metal Bulletin, no. 8451, February 17, p. 11.
- 2000c, Full production at Los Frailes set for late March: Metal Bulletin, no. 8451, February 17, p. 9.
- 2000d, Western Metals to expand Pillara plant and close Cadjebut: Metal Bulletin, no. 8452, February 21, p. 6.
- Mining Journal, 2000a, Bell-Allard suspension: Mining Journal, v. 334, no. 8572, March 3, p. 178.
- 2000b, Sound fundamentals for zinc: Mining Journal, v. 334, no. 8568, February 4, p. 94-95.
- Platt's Metals Week, 2000a, Century zinc project undergoes final commissioning: Platt's Metals Week, v. 71, no. 9, February 28, p. 7.
- 2000b, Cominco to increase Red Dog zinc output: Platt's Metals Week, v. 71, no. 7, February 14, p. 14.
- 2000c, Iran to commission zinc plant: Platt's Metals Week, v. 71, no. 9, February 28, p. 8.
- 2000d, Peñoles expanding Torreón zinc output: Platt's Metals Week, v. 71, no. 6, February 7, p. 7.
- 2000e, Tara zinc unions back deal; mine aims for full capacity: Platt's Metals Week, v. 71, no. 8, February 21, p. 1.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1999			2000
	January- December p/	November	December	January
Production:				
Mine, zinc content of concentrate	813,000 r/	64,600 r/	69,600 r/	68,000
Mine, recoverable zinc	771,000 r/	61,200 r/	65,900 r/	64,400
Smelter, refined zinc	355,000	31,200	27,200	27,200
Oxide (gross weight)	123,000	9,880	7,910	7,910
Consumption:				
Refined zinc, reported	504,000	41,100	39,700 r/	41,100
Ores e/ (zinc content)	1,020	85	85	85
Zinc-base scrap e/ (zinc content)	225,000	18,800	18,800	18,800
Copper-base scrap e/ (zinc content)	200,000	16,700	16,700	16,700
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240	103	103	103
Total e/	932,000	76,700 r/	75,400	76,700
Apparent consumption, metal 2/	1,430,000	114,000	106,000 r/	105,000 3/
Stocks of refined (slab) zinc, end of period:				
Producer 4/	XX	8,730	8,730	8,730
Consumer 5/	XX	61,400	61,500	63,800
Merchant	XX	9,710	9,690	9,690
Total	XX	79,900 r/	80,000	82,200
Shipments of zinc metal from Government stockpile	22,100	2,320	2,290	3,970
Imports for consumption:				
Refined (slab) zinc	1,060,000	80,000	76,400	NA
Oxide (gross weight)	65,200	5,710	6,240	NA
Ore and concentrate (zinc content)	74,600	3,090	16,000	NA
Exports:				
Refined (slab) zinc	1,880	295	299	NA
Oxide (gross weight)	7,260	391	452	NA
Ore and concentrate (zinc content)	531,000	14,400	31,600	NA
Waste and scrap (gross weight)	28,200	2,600	2,910	NA
Price:				
London Metal Exchange, average, dollars per metric ton	1,075.96	1,146.77	1,183.34	1,178.43
Platt's Metals Week North American Special High Grade, average, cents per pound	53.48	56.53	57.94	57.72

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1999:				
January	9,060	30,200	29,700	9,590
February	9,590	27,700	28,900	8,360
March	8,360	31,900	30,100	10,200
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	28,200	28,600	8,930
July	8,930	28,600	28,800	8,770
August	8,770	30,600	31,400	7,900
September	7,900	27,200	27,000	8,120
October	8,120	31,500	30,700	8,960
November	8,960	31,200	31,400	8,730
December	8,730	27,200	27,200	8,730
Year total	XX	355,000	355,000	XX
2000:				
January	8,730	27,200	27,200	8,730

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1999:				
January	5,060	12,600	12,900	4,810
February	4,810	12,400	12,900	4,270
March	4,270	11,800	11,800	4,270
April	4,270	11,800	12,400	3,680
May	3,680	11,900	11,900	3,640
June	3,640	8,680	9,010	3,310
July	3,310	8,720	8,740	3,290
August	3,290	9,150	9,020	3,420
September	3,420	9,230	9,070	3,570
October	3,570	9,320	9,160	3,730
November	3,730	9,880	9,650	3,960
December	3,960	7,910	8,620	3,250
Year total	XX	123,000	125,000	XX
2000:				
January	3,250	7,910	7,910	3,260

XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE
SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1999			2000
	January- December p/	November	December	January
Agriculture	1,660	128	122	128
Ceramics	6,380	473	441	418
Chemicals	27,200	2,140	1,860	1,670
Paints	5,060	332	309	296
Photocopying	3,080	273	231	203
Rubber	80,200	6,170	5,530	5,100
Other	1,530	136	117	102
Total	125,000	9,650	8,620	7,910

p/ Preliminary.

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1999			2000
	January- December p/	November	December r/	January 2/
Galvanizing:				
Sheet and strip	575,000 r/	46,000	43,000	42,500
Other	221,000 r/	17,400	15,800	15,500
Total	796,000 r/	63,400	58,900	58,000
Brass and bronze	206,000	16,100	15,000	15,100
Zinc-base alloy	263,000 r/	19,900	19,200	19,500
Other uses 3/	166,000	14,500	12,400	12,400
Grand total	1,430,000	114,000	106,000	105,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American ¢/lb.	LME cash	
		¢/lb.	\$/mt.
1999:			
January	47.06	42.29	932.34
February	50.90	46.13	1,016.90
March	51.27	46.70	1,029.61
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
July	53.72	48.61	1,071.69
August	56.26	51.26	1,130.16
September	58.65	54.13	1,193.34
October	56.61	52.09	1,148.36
November	56.53	52.02	1,146.77
December	57.94	53.68	1,183.34
Year average	53.48	48.80	1,075.96
2000:			
January	57.72	53.45	1,178.43

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1998		1999 2/			
	Quantity (metric tons)	Value (thousands)	December		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	2,330	\$2,750	299	\$384	1,880	\$2,220
Ore and concentrate (zinc content)	552,000	248,000	31,600	43,400	531,000	317,000
Waste and scrap (gross weight)	35,000	27,500	2,910	2,300	28,200	24,400
Powders, flakes, and dust (zinc content)	5,530	10,500	554	703	5,050	9,500
Oxide (gross weight)	6,210	11,300	452	621	7,260	11,700
Chloride (gross weight)	1,940	1,290	117	105	3,200	2,140
Sulfate (gross weight)	4,380	2,780	374	239	4,750	2,940
Compounds, other (gross weight)	305	1,170	107	249	864	3,280

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1998		1999 2/			
	Quantity (metric tons)	Value (thousands)	December		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	879,000	\$956,000	76,400	\$92,900	1,060,000	\$1,050,000
Ore and concentrate (zinc content)	46,300	23,700	16,000	8,790	74,600	40,500
Waste and scrap (gross weight)	29,200	15,700	2,270	1,020	26,600	13,100
Powders, flakes, and dust (zinc content)	17,600	34,000	1,360	2,670	21,300	38,400
Oxide (gross weight)	58,900	60,100	6,240	6,580	65,200	66,600
Chloride (gross weight)	1,570	1,520	62	81	1,650	1,520
Sulfate (gross weight)	10,400	5,940	770	465	10,500	6,350
Compounds, other (gross weight)	1,260	1,730	85	68	1,340	1,420

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1999:			
January	199,000	2,150	197,000
February	197,000	2,750	194,000
March	194,000	2,800	191,000
April	191,000	1,640	190,000
May	190,000	736	189,000
June	189,000	800	188,000
July	188,000	1,450	187,000
August	187,000	2,830	184,000
September	184,000	2,310	181,000
October	181,000	--	181,000
November	181,000	2,320	179,000
December	179,000	2,290	177,000
Year total	XX	22,100	XX
2000:			
January	177,000	3,970	173,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1998	1999 2/		1998	1999 2/	
		December	Year to date		December	Year to date
Ore and concentrate (zinc content):						
Mexico	17,100	631	14,000	17,100	631	13,700
Peru	26,900	11,100	43,700	26,100	10,500	40,600
South Africa	--	4,890	12,800	--	4,890	12,800
Other	3,270	--	7,640	3,130	--	7,540
Total	47,300	16,600	78,100	46,300	16,000	74,600
Blocks, pigs, or slab:						
Brazil	6,750	2,000	19,700	6,750	2,000	19,700
Canada	504,000	45,800	535,000	505,000	45,800	535,000
China	52,800	2,980	62,500	52,800	2,980	55,800
Kazakhstan	27,000	2,910	135,000	27,000	2,910	135,000
Korea, Republic of	42,600	3,580	51,700	51,900	3,580	51,700
Mexico	78,000	6,410	95,100	78,000	6,410	95,100
Peru	47,800	5,000	68,500	47,800	5,000	68,500
Poland	16,100	1,000	13,300	16,100	1,000	13,300
Russia	16,400	622	16,100	16,400	622	16,100
Spain	25,700	6,040	11,700	25,700	6,040	11,700
Other	48,900 r/	--	47,500	51,500 r/	--	55,100
Total	866,000	76,400	1,060,000	879,000	76,400	1,060,000
Dross, ashes, & fume (content)	21,100	1,470	20,000	21,100	1,470	20,000
Grand total	934,000	94,500	1,150,000	946,000	93,900	1,150,000
Oxide (gross weight):						
Canada	33,000	2,950	35,800	33,000	2,950	35,800
China	1,890	318	1,790	1,890	318	1,790
Germany	313	163	1,270	313	163	1,270
Japan	857	149	1,150	857	149	1,150
Mexico	18,900	2,160	20,700	18,900	2,160	20,700
Netherlands	2,290	264	2,660	2,290	264	2,660
South Africa	--	100	260	--	100	260
Other	1,720 r/	133	1,530	1,710 r/	133	1,530
Total	58,900	6,240	65,200	58,900	6,240	65,200
Other (gross weight):						
Waste and scrap	29,200	2,270	26,600	29,200	2,270	26,600
Sheets	16,200	3,350	22,600	16,900	3,350	22,600
Powders, flakes, and dust (zinc content)	17,600	1,360	21,300	17,600	1,360	21,300

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.